

## Claims

- [1] A compact thermal exchange device for thermo-electric cooling mode, the device comprising:
- a thermal electric cooling unit formed around a center of the compact thermal exchange device;
  - two plates in the thermal electric cooling unit, each of the plates being formed on an upper side and a lower side of the unit, respectively;
  - two housing walls, each of the housing walls being installed on the upper side and the lower side of the thermal electric cooling unit, respectively;
  - a plurality of heat pipes directly inserted into the plates;
  - a plurality of fins formed on the heat pipes;
  - an external fan provided over the fins; and
  - an internal fan provided under the fins.